PB84-179605

Toxic Substance Storage Tank Containment Assurance and Safety Program Recommendations for Implementation of a Containment Assurance and Safety Program

Maryland Dept. of Health and Mental Hygiene
Baltimore

Prepared for

Environmental Protection Agency, Washington, DC

Dec 83

U.S. Department of Commerce
National Technical Information Service
NTIS

PB84-179605

TOXIC SUBSTANCE STORAGE TANK CONTAINMENT ASSURANCE AND SAFETY PROGRAM

RECOMMENDATIONS FOR IMPLEMENTATION OF A CONTAINMENT ASSURANCE AND SAFETY PROGRAM

MARYLAND DEPARTMENT OF

HEALTH AND MENTAL HYGIENE

STATE OF MARYLAND
DEPARTMENT OF HEALTH AND MENTAL HYGIENE
OFFICE OF ENVIRONMENTAL PROGRAMS
SCIENCE AND HEALTH ADVISORY GROUP

REPRODUCED BY
NATIONAL TECHNICAL
INFORMATION SERVICE
U.S. DEPARTMENT OF COMMERCE
SPRINGFIELD, VA. 22161

50272-101

REPORT DOCUMENTATION PAGE	1. REPORT NO. MDHMH/OEP/SHAG-84/05	2.	3. Recipient's Accession No. PB84 179605

4. Title and Subtitle
RECOMMENDATIONS FOR IMPLEMENTATION OF A CONTAINMENT ASSURANCE AND SAFETY PROGRAM
Toxic Substance Storage Tank Containment Assurance and Safety Pgm

5. Report Date: Dec. 83

6.

7. Author(s): Ecology and Environment, Incorporated

8. Performing Organization Rept. No.: SHAG 05

9. Performing Organization Name and Address
Maryland Department of Health and Mental Hygiene
Office of Environmental Programs, Science & Health Adv. Grp.
O'Conor State Office Building
201 West Preston Street
Baltimore, MD 21201

10. Project/Task/Work Unit No.: Tank Project

11. Contract(C) or Grant(G) No.
(C)
(G) CS-807-904-010

12. Sponsoring Organization Name and Address
The U.S. Environmental Protection Agency
401 M St., S.W. East Tower
Washington , D.C. 20460

13. Type of Report & Period Covered: 5/81-12/83

14.

15. Supplementary Notes

16. Abstract (Limit: 200 words)

The first four steps in any implementation plan have already been taken in Maryland, by distributing the various documents that precede this one, and by soliciting public comment on them (at the seminars held in 10/83). These comments were made a part of the next press run of the documents.

The next step, according to the Recomendations is to develop a data base to document spills from hazardous materials storage tanks. This should include: an inventory of hazardous materials storage tanks in the State; a listing of the storage tank types, materials of construction, volumes and contents; a description of each tank's appurtenances; detailed accounts of past spills from storage tanks; secondary containment systems employed and operation and maintenance procedures utilized.

Following a comprehensive evaluation of the data, and a determination whether or not an additional level of governmental regulation is needed, the State must decide upon appropriate continuing options, which could include, no further regulatory action; a mandatory self-monitoring system; a voluntary program , with incentives to encourage compliance; a fully mandatory compliance program and combinations of any of these measures.

17. Document Analysis a. Descriptors

Storage tank safety program
Voluntary tank safety program
Mandadtory tank safety program
Self-monitoring tank safety program

b. Identifiers/Open-Ended Terms

pollution prevention
storage tank pollution prevention

c. COSATI Field/Group

18. Availability Statement:
No restriction on distribution
Available from National Technical Information Service, Springfield, VA 22161

19. Security Class (This Report): UNCLASSIFIED

20. Security Class (This Page): UNCLASSIFIED

21. No. of Pages: 9

22. Price

(See ANSI-Z39.18) See Instructions on Reverse

OPTIONAL FORM 272 (4-77)
(Formerly NTIS-35)
Department of Commerce

MD-489-D458

TOXIC SUBSTANCE STORAGE TANK CONTAINMENT ASSURANCE AND SAFETY PROGRAM: RECOMMENDATIONS FOR IMPLEMENTATION OF A CONTAINMENT ASSURANCE AND SAFETY PROGRAM

PREPARED UNDER
U.S. ENVIRONMENTAL PROTECTION AGENCY
GRANT NUMBER CS807904010
AUTHORIZED BY SECTION 28 OF THE
TOXIC SUBSTANCES CONTROL ACT

BY:

Ecology and Environment, Inc.
Buffalo, New York

and

Whitman, Requardt and Associates
Baltimore, Maryland

FOR:

STATE OF MARYLAND
DEPARTMENT OF HEALTH AND MENTAL HYGIENE
OFFICE OF ENVIRONMENTAL PROGRAMS
SCIENCE AND HEALTH ADVISORY GROUP
201 WEST PRESTON STREET
BALTIMORE, MARYLAND 21201

October 11, 1983

The purpose of a Containment Assurance and Safety Program is to protect health, life, resources, and property through the prevention and control of unauthorized discharges of hazardous materials to the environment. To insure attainment of this objective, a program of containment assurance and safety practices should be implemented throughout the state. This program should be implemented in several steps of varying degrees of complexity. These steps consist of:

- Dissemination of the Guide and Procedures Manual which sets forward the proper methods of storage of hazardous materials;
- Dissemination of the Training Manual which is the accompanying document to the Guide and Procedures Manual;
- Dissemination of the Guidelines for Application of Technical Codes for Hazardous Materials Storage Tanks;
- Solicitation of public comment on the above documents, and addressing the comments in subsequent editions of the documents;
- Development of a suitable data base to document spill incidents from hazardous materials storage tanks;
- Evaluation of the data base to determine the magnitude of the problem of containment assurance with regard to hazardous materials in storage tanks; and
- Evaluation and formulation of regulatory strategies to solve problems identified in the previous step.

Through the development of the Guide and Procedures Manual, the state has begun implementing the first four steps, i.e., dissemination of documents which provide guidelines and procedures for the safe storage of hazardous materials and the solicitation of public input.

The next step is to develop a suitable data base to document spill incidents from hazardous material storage tanks. This step is

necessary in order to provide a solid foundation from which the state can make reasonable regulatory decisions. The data base should be as complete as possible and should be specifically directed toward storage tank systems. At the present time, no procedures are in effect which would satisfy the data base need. The data base should include:

- An inventory of the hazardous materials storage tanks in the state;
- A listing of the storage tank types, materials of construction, volumes, and contents;
- A description of each tank's appurtenances;
- Detailed accounts of past spills from each storage tank;
- Secondary containment systems employed; and
- Operation and maintenance procedures utilized.

Once a suitable data base has been established, the data will have to be evaluated on a regular basis. This evaluation should focus on determining the magnitude of the problem. The evaluation should determine if the present practices of the storage of hazardous materials are adequate or require some additional level of governmental regulation.

At this point, the state must determine how the program should continue to ensure that these problems are addressed. The basic options to the state are as follows:

- No further regulatory action,
- Mandatory self-monitoring program,
- Voluntary program with incentives to encourage compliance,
- Fully mandatory compliance program, or
- Combinations of the above.

These options are discussed in the following sections.

No Further Regulatory Action. This is the easiest and least effective option to exercise. It would require minimal levels of effort, primarily those needed to continue distribution of the Guide and Procedures Manual and the accompanying documents. If the state chooses this option, it does not preclude taking other regulatory actions in the future should the need arise.

Other methods which could be adopted by the state include:

- Periodic continuing education seminars for maintenance and inspection personnel, sponsored by the state;
- "Hot line" services through which facility operators may receive guidance on specific problems; and
- A newsletter, or public relations bulletins highlighting containment assurance practices.

Mandatory Self-Monitoring Program. Upon distribution of the Guide and Procedures Manual, it is hoped that storage facilities will adopt the practices described therein. Under this option, acceptance of some of these practices would be mandatory, and regulatory methods would be adopted to encourage their use.

To ensure that compliance with the program is being achieved, some means of inspection would be required. Inspection could be performed in a randomly selected group of facilities, or it could be done on a systematic basis. Similar to USEPA's Spill Prevention, Control, and Countermeasure (SPCC) program, inspected facilities would be expected to have all necessary monitoring and documentation on file, and to be operating their facilities in accordance with specific guidelines. The facilities not in compliance would be subject to enforcement action within the scope and authority of the containment assurance program. Such a program would require adequate resources to support an inspection team, enforcement activities, and any administrative support.

Voluntary Program with Incentives. Voluntary implementation of engineering measures for containment assurance practices may be difficult to ensure. Because of the labor and costs usually involved in such considerations, voluntary improvement of storage practices may be best implemented by providing economic incentives. These may include:

- No-cost, "no-fault" inspections provided by the state at the facility's request, in which problem areas could be identified without risk of fine or other penalty to the operator. (The operator would retain full liability for accidental releases resulting from uncorrected problems.);
- Low-cost design or design approval services;
- Lowered insurance premiums, taxes, or fees for facilities adopting state-of-the-art engineering practices;
- Tax credits or additional depreciation allowances for facility improvements; and
- Increased limits of insurance liability for operators not improving their facilities.

This program would necessitate additional state inspection and technical manpower to render the "approval service" and other aspects of the program.

Full Mandatory Compliance Program. Implementation of a full mandatory program necessitates the imposition of some sort of regulatory process of permitting, inspections, and enforcement. The state would have to adopt a permitting or licensing program, with periodic audits to determine compliance. Failure of facilities to comply with permit requirements may result in such consequences as fines, operating restrictions, or curtailment of operations. Requirements of a permit program may include development and submission of:

- Hazardous materials inventory,
- Hazardous materials management plan,
- Description of all hazardous materials activities,
- Protocols and schedules for maintenance and inspection,
- Proof of insurance liability and cost recovery protection,
- Emergency contingency plans, and
- Spill control and countermeasure plan.

The permit also may require numerous engineering controls. These may include installation or improvement of such things as:

- Monitoring capabilities,
- Primary and secondary containment structures,
- Appurtenances,
- Drainage systems, and
- Professional engineer certification.

Enforcement of compliance with engineering practices would rely heavily on inspections by qualified personnel. State inspection activities may be supplemented by trade organization and insurance company certification. Insufficient compliance may result in permanent or temporary suspension of the operating permit and attendant consequences.

Implementation of a mandatory program carries with it the burden of extensive administrative and technical overhead. Because numerous individuals are likely to be involved in the various permit application, review, and inspection phases, the program will require adequate quality control measures to prevent non-uniformity in those procedures.

Implementation of a new state regulatory program should progress in a systematic manner and provide for adequate review, evaluation, and refinement of the program before full resources are committed to it. Phases for program implementation should be as follows:

- Notification - in which the public and industry are introduced to the program;

- Development - in which the program is monitored and evaluated;
- Decision - in which program evaluation data are used to determine necessary changes;
- Review - in which alternative approaches to program changes are evaluated and selected; and
- Program adoption.

Before the notification phase can begin, it is essential that the state adopt a mechanism for establishing a uniform data base. It is essential that the state identify the numbers and types of facilities to be affected by the program before it can effectively monitor them. Therefore, any data gaps must be identified and corrected. The current Toxic Substances Registry is a suitable mechanism for establishing the data base. However, it must be determined that the registry collects the appropriate amount and type of data (such as numbers of facilities, types and quantities of materials stored, type of containment measures, etc.) defined within the scope of the program's objectives.

Steps also should be taken to insure adequate quality control and uniformity of data collection procedures. This can be achieved by such measures as eliminating duplication of effort, insuring that persons with the appropriate backgrounds perform the inspections and reviews, and by having these inspections and reviews subjected to a quality control review.

Regardless of the type of program to be implemented, it is recommended that the state take steps to consolidate its administrative process. At present, four departments within the state have major jurisdiction over hazardous materials storage facilities. The state should establish a committee made up of representatives of these departments to handle all hazardous materials storage issues. Containment assurance activities could then be handled in one of two ways: by a single department designated by the committee as having primary jurisdiction; or by a joint-department, multidisciplinary team.

By adopting a consolidated program, the state will facilitate the regulatory process, minimize manpower and time required for program administration, reduce the frequency of redundant inspections of industrial facilities, and vastly improve the uniformity and quality of administrative procedures.

Implementation of this program should begin with notification. All facilities under the program's jurisdiction should be notified of the purpose and scope of the program, and should be provided with all necessary forms and documentation to begin whatever compliance efforts are called for.

The development phase will be used to establish a data base using the Toxic Substance Registry or similar mechanism. All information submitted by the facilities will be reviewed for completeness, and re-submitted if found to be incomplete. Inspections should be performed to verify the information submitted, and to determine extent of uniformity with program guidelines. It is anticipated that this phase will take a minimum of one to two years to complete.

At the end of the development phase, the program will have reached its first decision point. The developmental data will be evaluated to determine such factors as degree of program effectiveness, extent of uniformity, specific strengths and weaknesses of the program, etc. On the basis of this analysis, alternative approaches to correcting deficiencies will be proposed.

These approaches will be reviewed in the next phase. In actuality, there are two stages of the review phase. The first involves the selection process by which the new approaches are chosen. This is primarily an internal decision-making process which considers such factors as how best to meet program objectives and require input from the relevant state agencies. The second stage is trial and evaluation of the selected approaches. This amounts to beginning a new developmental phase, and will require evaluation at an appropriate decision point, and another review. The loop from review to development to decision and back to review should be repeated (usually once or twice) until the program deficiencies are corrected. Once the review indicates that program objectives are being achieved acceptably, the program should be fully adopted.

By adopting this approach, the state will be able to meet its containment assurance objectives while minimizing its need to be present at industrial facilities. Under this approach, the state should receive written documentation of current and proposed procedures and improvements at the facilities involved. By reviewing these documents, the state will be able to determine that containment assurance objectives are met. Periodic quality control inspections can be made to insure that these objectives are met uniformly across the state.